



Newsletter of the Arizona Geographic Information Council

## Internships: Gateway to Success!

Learn new skills! Use the latest technology! Get a competitive edge! Earn professional recognition! Launch an exciting career! All this can be yours with a college internship!

Some people are prone to overindulgence when describing the potential results of a given course of action. The ebullient advertisement above, however, is not too far removed from describing the benefits that a student can gain from completing an internship.

According to reports from former interns, the compelling results presented are fairly common.

To get an idea of what internships offer and what they can lead to, we put out a call through AGIC-L asking for people who had been GIS interns. The respondents were then sent a list of questions and they wrote back with their answers. We received answers from 14 people, some who are currently working as interns and others who had to look back ten years to remember their experiences. The results should encourage anyone who is involved with an internship program.

The first question we asked was, "What was your major?" The responses varied widely: Master's in Public Administration with an undergraduate major in geography; Master of Environmental Planning; Master's in Management Information Systems with a Bachelor's in Architecture; Geography with an emphasis in Urban Studies; Bachelor's in Regional Development, minor in sociology; Geography with an emphasis in GIS; Master of Anthropology, Bachelor of History. The list goes on. Clearly the utility of GIS is appreciated in places far beyond college geography departments.

What compels people to seek out internships? What's in it for them? What do they want from the experience?

"To be more marketable in getting a job after I graduated. Gain relevant experience. See what types of jobs were out there."

"I saw an opening on their website and it interested me."

"I took a couple of GIS classes and realized that this is where many of the geography-related jobs would be upon graduation."

"Curiosity and an available opening."

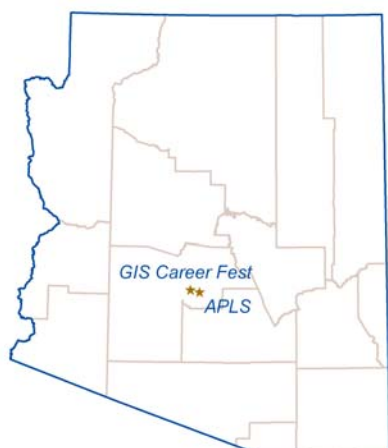
"To experience the field firsthand to help decide in my future career choices."

"I thought working in the field was the best way to develop my skill sets within the GIS."

Once a person decides, for various reasons, to pursue an internship, the question arises: What does one do there? It turns out that the duties that fall upon an intern can range from dull to dynamic. It depends on the needs of the employer. Sometimes a staff member will act as a mentor, teaching and guiding the student in aspects of GIS that address the company's needs. In other situations an intern is hired because the company is short on staff and needs someone to do basic work, in which case mentoring is not part of the equation. Some interns will learn to use GIS software that is not available in the classroom, while others may do many things to support the GIS staff but won't actually do GIS themselves. Some examples:

"Map creation, data analysis and management,

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## Professional Land Surveyors Adopt “Geospatial Professional” Membership

In July 2006, the Arizona Professional Land Surveyors (APLS) unanimously approved a significant change to their membership by-laws, allowing qualified geospatial professionals to join APLS with all the Association rights and voting privileges that regular Professional Land Surveyor members currently enjoy. Inclusion of the new Geospatial Professional membership category is meant to create a synergy between the two important expert groups in the technologies critical to accurate geospatial information creation. It enables geospatial professionals, who as a group currently lack professional certification, to contribute information and achieve recognition of their valuable knowledge base through a known professional association. Likewise, surveyors will receive a valuable addition to their skills through the close interaction with geospatial-experienced practitioners.

By being the first professional surveying association in the United States to provide this sort of membership opportunity to geospatial professionals, Arizona surveyors really do get the point: it's about incorporating valuable members onto the team.

This journey began back in 2002, when thirteen brave souls met to discuss a disconnect between the survey community and (at that time) the GIS community. Ron Platt (GIS Manager, City of

Tucson) initiated this effort by bringing together a group of surveyors, GIS users, and other geomatics professionals. It was recognized that there was a need to begin looking at all geospatial professions as a whole, by reviewing their commonalities (and differences) while discussing a future that was ripe for change. After much discussion and deliberation, a decision was made to form an APLS subcommittee (which later became the Geospatial Committee) to look at the possibility of including other geospatial professionals in APLS. Led by chairman Jack Avis, the committee edited the APLS by-laws to define geospatial professionals within the organization, promoted the change through presentation to all APLS chapters within the state, and defined the membership criteria for becoming regular “professional” members within APLS on par with registered Land Surveyor members.

In this dynamic world, technology provides both geospatial professionals and surveyors with common tools for mapping and defining our spatial environment. Expanding the APLS organization enables better communication and gives all members a stronger voice. AGIC and APLS have been working together over the past several years to provide better education for our peers, and to provide a venue for ensuring that the interests of all geospatial professionals are effectively communicated. We currently share space at each others' professional conferences, which includes tracks designated for all lineages of the various professions. The integration of survey and geospatial professionals within Arizona will provide better insight to our collective responsibilities and allow us to act in the best interest of the public. ♦

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*Previous issues of Surface Matters  
are available on the AGIC web site.*

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***Surface Matters*** is the quarterly newsletter of the Arizona Geographic Information Council. It is written for those who want to stay in touch with the vision and activities of AGIC and with the continuing growth of GIS in Arizona.

Your comments about this publication are always welcome. Please send all correspondence to the editor.

Readers are invited to submit articles that they wish to be considered for publication. The author retains all copyrights. Please let the editor know if the article has been published elsewhere.

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## Arizona Professional Land Surveyors Association Geospatial Professional Mission Statement

To act in the best interest of the public by providing Geospatial Professionals with a forum for promoting best practices, developing spatial standards, fostering education, and encouraging participation with Land Surveying and other relevant geospatial disciplines

*Message from the Board continued*

## Further Thoughts on Surveying and Geospatial Professionals

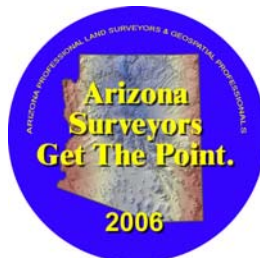
**Lee Harbers**

*APLS Representative to AGIC*

Initially, many members of APLS, including myself as a Registered Land Surveyor and Certified Photogrammetrist, questioned the legitimacy of "non-registrants" being voting members in the professional organization. However, I have come to realize that it is a responsibility of APLS to provide an opportunity for all geospatial professionals to have a forum for our mutual interests in this dynamic and rapidly changing technology field. GIS technologists and professionals can now pursue this opportunity to share their knowledge and participate in fulfilling the "Geospatial Professional Mission Statement."

We have ALL reached a lofty goal and set the standard for other states by creating a new organization and exciting opportunity for all of us to share vital information and insight with each other, end users, and the public.

Although GIS technologists and professionals do not have "registration" status in Arizona, the American Society of Photogrammetry and Remote Sensing (ASPRS) offers an opportunity for recognition as a Certified Mapping Scientist – GIS/LIS for those who meet the basic requirements. ASPRS has worked closely with the surveying and GIS community over the years to develop a strong relationship and is the only professional organization that offers a GIS certification by **examination**. This is yet another professional organization that has recognized the value of cross-pollination of our mutually important professions. ASPRS has recognized the accomplishments of APLS and fully supports these efforts. Again, many kudos to those surveying and geospatial professionals who made this possible. ♦



## Internships

*continued from page 1*

tracking of grass areas using GPS unit and adding them to maps."

"Responsible for day-to-day support of the GIS staff in carrying out different projects related to data verification, scrubbing, metadata documentation, zoning information, and deed research."

"Primarily worked on making maps and data entry."

"GIS technician- then hired full time after 3 months and promoted to Specialist, when I finished my GIS certificate I was promoted to Analyst."

Note that some paid internships may be extended for several months or may lead to full-time jobs.

In the course of the doing, what of the learning? What do students come away with?

"I learned a great deal about how energy is produced and distributed throughout the city. We had a great deal of training on the equipment used to distribute electricity, the business approach to distributing the electricity, and everything in between the generation of electricity to how it is delivered into your house."

"How important map design and layout is - doesn't matter how good your data is if your maps do not look good. Also learned to use ARC/Info and several of the extensions such as Publisher."

"I learned a lot about engineering: storm sewer systems, water flow, AutoCAD, Micro Station, RFPs. I also learned that working in a cubicle from 8-5 is not the job for me."

"I learned tons. The major thing was how office politics (cubicles, chain of command, etc.) operate. It was a new eye-opening experience to have my own cubicle and no time-clocks or anything. Also, since I was using the latest technology in the classroom and the not-so-latest technology at work, I was able to see how far GIS has actually come, from the old UNIX based days, with coverages and everything."

"Lessons learned were - 1. GIS/IT was an ever-changing industry with new programs to learn constantly, 2. A good attitude amounted to a LOT at the workplace, 3. It's not always easy to work in a team."

All of our respondents enthusiastically replied that the internship experience was very worthwhile and that they would recommend it to current students. Several also stressed the importance of having relevant experience upon entering the working world.

"As someone in a position that reviews resumes and makes decisions on which person to hire or not hire, I can say that it is important for students to get 'real world experience.'"

"The internship taught me a lot, prepared me more for a career in GIS, helped me earn credit, and kept my wallet full." ♦

*Our respondents' answers make great reading and provide much more detail than will fit on these pages. The full text of the survey answers can be found at [http://agis.az.gov/newsletter/Intern\\_answers.pdf](http://agis.az.gov/newsletter/Intern_answers.pdf).*

# Supplying Better Graduates for the Geospatial Industry

Ruth Jensen, Shea Lemar

In his article, "Defining the Components of the Geospatial Workforce—Who Are We?" (ArcNews, Winter 2005/2006), Duane Marble addressed current needs of the geospatial workforce. He noted that academic programs are not producing graduates that meet the needs of the geospatial industry. One of the main contributors to this fact, according to Marble, is that "existing academic geospatial programs have been established with little or no feedback from the geospatial industry to assist them in identifying the specific knowledge and skill sets that are required to support particular geospatial activities." Arizona State University (ASU) and the Arizona Geographic Information Council (AGIC) are working to address this issue.

ASU and AGIC are hosting a GIS Career Fest on October 11, 2006, from 1:30 p.m. to 3:30 p.m. The goal of the GIS Career Fest is to bring local GIS practitioners to campus to meet with geospatial students and provide the GIS practitioners a venue to impart their future workforce needs. A panel of five GIS practitioners will answer some questions addressing what they need from future employees and what is lacking in the current supply of graduates. The students will then have time to visit with some 20 local organizations (public and private) that use GIS. During this time, the students will be shown what types of jobs are available, the required skills, and the pay scale for those jobs.

It is the supposition of the organizers that educators are telling their students that more is required of a geospatial professional than the ability to manipulate existing GIS software. However, with all of the buzz going around about the importance of geospatial technologies and the great need for geospatial practitioners, students might not be listening to their professors.

It is predicted that a message coming from future employers will be more important to the students and will affect the students' future academic studies. This program will provide the students an opportunity to realize the areas in which they need to focus the remainder of their academic careers. It has the added advantage of showing local GIS businesses and companies that ASU and higher-level education programs are producing quality future GIS professionals that will contribute to their companies' various goals and visions.

The GIS Career Fest could be a model for academic programs and local GIS practitioners around the country. It can place GIS education programs on the path toward the goal stated by Marble: "Those individuals who make up the geospatial workforce must be capable of dealing with a continuing pattern of rapid change, as well as with the substantial challenge of

adapting existing knowledge and tools to use in a variety of new, complex situations. Thus, flexibility, spatial problem identification and solving capabilities, and an above-average knowledge of computer and information science, as well as the ability to spend their careers in a near continuous learning mode, become critical characteristics at nearly all levels of the future geospatial workforce."

## More Information

For more information, visit [issrweb.asu.edu/GIScf.htm](http://issrweb.asu.edu/GIScf.htm)

*This article originally appeared in ArcNews, Summer 2006, © ESRI, Inc.*

**What:** The ASU/AGIC GIS Career Fest

**When:** Wednesday, October 11, 2006, 1:30-3:30 PM

**Where:** Arizona State University, Memorial Union

**Why:** To discuss what employers expect from geospatial employees in terms of skills and knowledge. This is a learning event for those preparing to enter the profession. It is not intended as a job fair.



## Arizona Imagery Project

The goal of the Arizona Imagery Project is to improve the utility and access to statewide digital orthoimagery for GIS clients in Arizona. The imagery server will do this by using existing imagery collected June to September 2005 and will be made accessible to State agencies, other governmental organizations, and the citizens of Arizona by means of an Internet map service. This project represents a collaborative effort between the Arizona State Cartographer's Office (SCO), the US Geological Survey (USGS) and the Arizona Geographic Information Council (AGIC).

Initial aerial products will be statewide, at one meter resolution, natural color, available in different coordinate systems via a web service for viewing and use in desktop GIS. Member agencies (governmental organizations) would have the opportunity to view and utilize information from the imagery server for internal use and deployment. AGIC, SCO, and USGS believe that this project will assist in providing necessary spatial information to areas that currently lack the resources to obtain such information on their own, assisting in a variety of local efforts: hazard mitigation, planning & development, and GIS integration.

It is important to note, the initial product will also be utilized by the US Census Bureau to update and extract road centerline information for the TIGER/Line<sup>®</sup> system. For jurisdictions lacking viable GIS information/resources, the use of these products could be an inexpensive way to get started in GIS. ♦

### Contributors

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## Arizona Height Modernization Program

Height modernization is an effort of the National Geodetic Survey to assist states in improving their existing geodetic control networks. This network is a fundamental reference system used for all mapping activities, whether national or local in scope. The "value of place" is great among the GIS community – this statewide effort will greatly enhance the ability of all jurisdictions to increase the accuracy of their spatial products and communicate geographic information effectively.

With Arizona's Congressional delegation support, Arizona was successful in obtaining FY06 funding for this program. The focus of the first year's efforts is commensurate with the funding available. These activities include:

- Establishing Arizona Continuously Operating Reference Stations (AZCORS) in high priority areas – GPS reference stations
- Installing infrastructure for a small-scale Arizona Spatial Reference Center – to receive, process, and distribute GPS data, manage the AZCORS network, and provide geodetic data to surveyors, first responders, and geospatial professionals
- Conduct Arizona Height Modernization Program workshops throughout the state to explain the goals and benefits of the program while obtaining additional program partners from area Federal, state, and local agencies.

AGIC and the State Cartographer's Office support these efforts and are currently working with other informed partners to petition our Congressional delegation to review and continue funding these efforts for FY07 and beyond. ♦



## AGIC Roundup

- Testing of the Internet server for the Arizona Imagery Project is nearing completion at the State Cartographer's Office. Images are still being added and the testing is going well.
- The AGIC Board will send a letter to the National States Geographic Information Council in support of the Imagery for the Nation project. This is a proposed Federal project that will, if implemented, provide standardized, high quality natural color imagery throughout the nation according to a regular schedule. Details of the proposed project can be found at [www.nsgic.org/hottopics/imageryofnation.cfm](http://www.nsgic.org/hottopics/imageryofnation.cfm)
- Several new GPS reference stations, known as Continuously Operating Reference Stations (CORS), will be added to Arizona's statewide network as part of the Height Modernization Project. This has been made possible thanks to funding from Congress and the support of Arizona's Congressional delegation.

### More Contributors

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**Tim Smothers**, City of Peoria  
AGIC Past President

**Brian Sovik**, AMEC Earth & Environmental, Inc.  
GIS Manager

**Karen Thomas**, City of Casa Grande  
Director of GIS Services



## Calendar of Events

### INTERNET MAPPING USER GROUP MEETING

SEPTEMBER 12, 2006

1:15 – 4:00 PM: CHECK-IN BEGINS AT 1:00

STATE OF ARIZONA

DEPARTMENT OF ADMINISTRATION BUILDING, ROOM 300

100 N. 15<sup>TH</sup> AVENUE, PHOENIX

CONTACT: SHEA LEMAR, 480-965-1205

[SHEA.LEMAR@ASU.EDU](mailto:SHEA.LEMAR@ASU.EDU)

### NORTHERN ARIZONA GIS USER GROUP MEETING

SEPTEMBER 14, 2006

HOSTED BY THE SEDONA FIRE DISTRICT

TIME AND PLACE TO BE ANNOUNCED

CONTACT: AARON SEIFERT, 928-773-0354

[ASEIFERT@SWIAZ.COM](mailto:ASEIFERT@SWIAZ.COM)

### THE ASU/AGIC GIS CAREER FEST

OCTOBER 11, 2006

1:30 – 3:30 PM

ASU MEMORIAL UNION

THIS IS A SPECIAL EVENT DESIGNED TO LET STUDENTS KNOW WHAT KNOWLEDGE AND SKILLS EMPLOYERS EXPECT FROM NEW GIS EMPLOYEES.

FOR DETAILS: [ISSRWEB.ASU.EDU/GISCF.HTM](http://ISSRWEB.ASU.EDU/GISCF.HTM)

### SOUTHWEST USER GROUP ANNUAL CONFERENCE (SWUG)

OCTOBER 14-18, 2006

DU BOIS CONFERENCE CENTER

NORTHERN ARIZONA UNIVERSITY

FLAGSTAFF, AZ

[WWW.SWUGGIS.ORG](http://WWW.SWUGGIS.ORG)

DUE TO THIS CONFERENCE BEING HELD IN ARIZONA, THE ANNUAL AGIC CONFERENCE WILL NOT TAKE PLACE THIS YEAR.

### AGIC QUARTERLY BOARD MEETING

NOVEMBER 2, 2006

10:00 AM

ARIZONA DEPARTMENT OF TRANSPORTATION

HUMAN RESOURCES DEVELOPMENT CENTER

1130 N. 22<sup>ND</sup> AVENUE, PHOENIX

GRAND CANYON ROOM 3

[HTTP://AGIC.AZ.GOV/BOARD/MEETINGS.HTM](http://AGIC.AZ.GOV/BOARD/MEETINGS.HTM)